ISSN (print) 0093-4666 © 2013. Mycotaxon, Ltd. ISSN (online) 2154-8889

MYCOTAXON

http://dx.doi.org/10.5248/123.289

Volume 123, pp. 289–292 *January–March 2013*

A new species of *Gautieria* from China

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Abstract —*Gautieria xinjiangensis,* collected from Xinjiang, China, is described and illustrated as new to science.

Key words —*Gomphaceae*, new taxon, morphology, taxonomy

Introduction

The diagnostic characteristics of *Gautieria* Vittad. (*Gomphaceae*, *Basidiomycota*) are a subglobose to reniform fruit body with a thin and easily evanescent peridium, a cartilaginous gleba with simple or branched columella and a coralloid type of development, often elongated, labyrinthiform cavities, a gelatinous-cartilaginous tramal plate and basidiospores with longitudinal ribs (Cunningham 1944, Zeller 1948, Rauschert 1975, Beaton et al. 1985). About 36 species and varieties have been described, with nine species known from China (Liu 1998, Ying 1984, 1995).

Recently, we have encountered an additional species, which is proposed here based on morphological characters.

Materials & methods

Materials were collected at Tianshan Mountains of Xinjiang, northwestern China and were deposited in the Herbarium of Mycology of Jilin Agricultural University (HMJAU). Morphological characters of the fungus were described and illustrated with traditional taxonomic methods. 5% KOH solution and Melzer's reagent were used when examining the microscopic characters.

Taxonomy

Gautieria xinjiangensis T. Bau, **sp. nov.** Plates 1–2

MycoBank MB 801448

Plate 1. Basidiomata of *Gautieria xinjiangensis* (holotype).

Differs from *Gautieria morchelliformis* by its larger basidiomata and its broadly ellipsoid to orbicular ovate basidiospores.

Type: China, Xinjiang Autonomous Prefecture, Urumchi City, Tianshan Mountains, on ground in forest dominated by *Picea schrenkiana* Fisch. & C.A. Mey., 5 September 2005, Tolgor Bau (**Holotype,** HMJAU6009; GenBank, JX860192).

Etymology: *xinjiangensis* refers to the type locality.

Macrocharacters — Basidioma emergent, 3–5.5 × 3–4 cm, subglobose to ovoid in outline, surface brain-like, yellow-brown to light rust; basal rhizomorph whitish, distinct. Peridium practically absent, or barely visible. Gleba yellow-brown to yellow-tan; columella absent; locules irregularly shaped, labyrinthine; inner surface covered with yellow-brown or yellow-tan hymenium.

Microcharacters — Basidiospores (13–)15–19(–21) × (8–)8.5–10(–11) μm, Q = 1.8–2, broadly ellipsoid to orbicular-ovate, yellow-brown to pale brown in KOH, with 9–11 longitudinal ribs, sometimes with branches or cross veins between ribs; apex broadly round; apiculus long, 2–3 × 1.5–2 μm. Basidia 20–30 × 7–10 μm, clavate, with granular or oil drops, 4- or 2-spored; sterigmata 2–3 μm long. Cystidia 30–40 × 8–12 μm, clavate, thin-walled to slightly thick-walled, hyaline, colorless. Peridium traces can be seen under a microscope, and composed of pseudo-parenchyma of large, subglobose to polygonal cells, usually 30–40 μm in diam, thin-walled, smooth, hyaline, frequently septate (cells 12–25 μm long). Tramal hyphae gelatinized, interwoven, frequently septate and branching, 3–7 μm diam., smooth, hyaline. Clamps absent in all tissues.

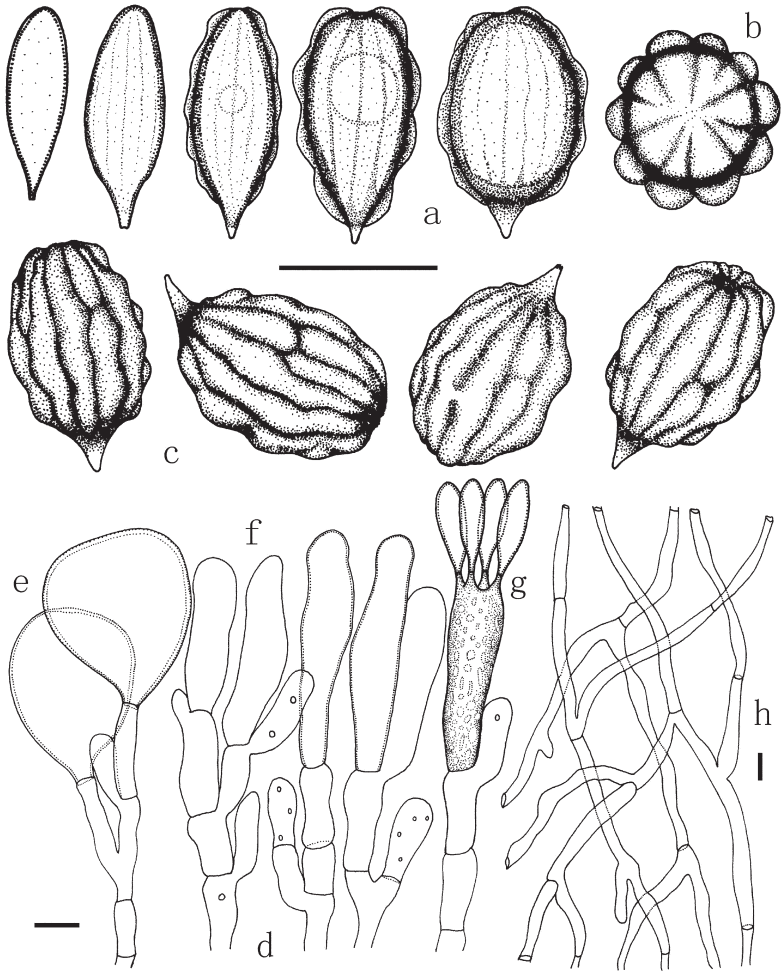

Plate 2. Microscopical characters of *Gautieria xinjiangensis* (holotype). a: young basidiospores; b: mature basidiospore in polar view; c: mature basidiospores; d: hymenium; e: pseudo-parenchyma cells of peridium traces; f: cystidia; g: basidium with young basidiospores; h: tramal hyphae. Scale bar = 10 μm.

Discussion

The main characteristics of *G. xinjiangensis* are the relatively large basidioma with a white basal rhizomorph, the absence of a columella, and the broadly ellipsoid basidiospores with 9–11 longitudinal ribs.

The nine *Gautieria* species reported from China (Liu 1998, Ying 1984, 1995) are all very different from the new taxon according to the authors' review of

the literature and examination of voucher specimens. *Gautieria hubeiensis* K. Tao et al. and *G. morchelliformis* Vittad. are distinguished by their lemon-shaped to long-ellipsoid basidiospores, and *G. globispora* K. Tao et al. by its globose basidiospores (Liu et al. 1996, Pegler et al. 1993, Tao et al. 1996, Vittadini 1831, Zeller & Dodge 1918). The other six species (*G. pallida* Harkn., *G. shennongjiaensis* K. Tao et al., *G. macrospora* G. Cunn., *G. sinensis* J.Z. Ying, *G. chengdensis* J.Z. Ying, *G. gautierioides* (Lloyd) Zeller & C.W. Dodge) differ from *G. xinjiangensis* by their smaller basidiomata (Liu 1998). In addition, *G. xinjiangensis* is associated with *Picea schrenkiana*, a plant endemic to Tianshan Mountains in China.

The ITS sequence of the holotype of *G. xinjiangensis* (Genbank JX860192) is highly (<99%) similar to sequences of USA material of *G. morchelliformis* (GenBank AF377066, AF377067), but the two species clearly differ in their basidiospore shape and basidioma size.

Acknowledgments

We thank Dr. Z.L. Yang (Key Laboratory of Biodiversity and Biogeography, Kunming Institute of Botany, Chinese Academy of Sciences, China) and Dr. R.H. Petersen (Department of Biology, University of Tennessee, USA) for their presubmission reviews of the manuscript. Financial support for this work was provided by Changjiang Scholars and Innovative Research Team in University (No. IRT1134).

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